

IN THE CLAIMS:

Please amend claims 1-21 as shown in the complete list of claims that is presented below.

1. (currently amended) A method for the continuous real time tracking of the position of ~~at least one~~ a plurality of mobile object objects in a defined multidimensional space, comprising:

attaching at least one mobile transmitter module which is attached modules to at least one the mobile object of the system that is to be analyzed objects;

receiving and whose signals are received from the transmitter modules by a stationary receiving and signal processing network; and

~~and are processed~~ processing the received signals centrally,

wherein the signals emitted by ~~the at least one~~ transmitter modules are electromagnetic waves which are transmitted within a frequency band range utilizing a time division ~~multiplex~~ multiplexing technique,

~~characterized in that the~~ wherein an available frequency band is used as a single channel ~~for the purposes of maximizing the~~ in order to maximize accuracy of the position ~~detecting process,~~ detection,

~~and in that the~~ wherein a communication process between ~~the~~ transmitters (S_1, S_2, \dots, S_n) in the transmitter modules and ~~the~~ receivers (E_1, \dots, E_n) of the receiving and signal processing network is based on ~~the~~ a principle of pseudo-random time division ~~multiplex~~ multiplexing using non synchronized pseudo-random patterns, and

~~in that the~~ wherein the transmitters of the transmitter modules emit transmission signals in ~~the different~~ burst transmissions ~~(B)~~ that are characterized by a low cross correlation.

2. (currently amended) A method in accordance with Claim 1, ~~characterized in that~~ wherein the principle of pseudo-random time division ~~multiplex~~ multiplexing comprises ~~the processes~~ a process of transmitting ~~(S, Sp, Sb)~~ at isolated, irregular time points, whereby each transmitter ~~(S, Sp, Sb)~~ uses a different pseudo-random sequence for the transmitting time point.

3. (currently amended) A method in accordance with Claim 1, ~~characterized in that~~ wherein the receivers ~~(E1,..., En)~~ estimate the time point of the next burst transmission ~~(B)~~ from a certain transmitter ~~(S, Sp, Sb)~~ ~~in the knowledge of~~ based on the pseudo-random time division ~~multiplex~~ multiplexing and the ~~known~~ pseudo-random pattern.

4. (currently amended) A method in accordance with Claim 3, ~~characterized in that~~ wherein only those signals are evaluated by the receiving and signal processing network which arise at the predetermined time point of the next burst transmission ~~(B)~~.

5. (currently amended) A method in accordance with Claim 3, ~~characterized in that~~
~~the process of predetermining~~ wherein the next burst transmission from a the certain
transmitter (S, ~~Sp~~, ~~Sb~~) is ~~effected~~ determined continuously.

6. (currently amended) A method in accordance with Claim 1, ~~characterized in that~~
wherein the transmitter modules are ~~miniaturized in such a manner that they are~~
~~adapted~~ miniaturized, at least one of the transmitter modules being small enough to be
inserted ~~even~~ into a ball.

7. (currently amended) A method in accordance with Claim 1, ~~characterized in that~~
wherein the frequency band range lies at approximately 2.4 GHz.

8. (currently amended) A method in accordance with Claim 1, ~~characterized in that~~
wherein the frequency band range has a bandwidth of 80 MHz.

9. (currently amended) A method in accordance with Claim 1, ~~characterized in that~~
wherein the receiving and signal processing network comprises stationary reference
transmitters (~~R1, ..., Rn~~) that are used as position references for the purposes of
minimizing errors and for the calibration of the ~~system~~, positions of the transmitter
modules, said reference transmitters transmitting an identification code in a ~~sequence in~~
~~like manner to the at least one mobile transmitter (S, Sp, Sb) for the at least one~~

~~moving object that is to be analyzed, and~~ sequence, the signals from said reference transmitters being detected by ~~the~~ receivers ~~(R1, ..., Rn)~~ of the receiving and signal processing network for the purposes of determining their time of arrival at the respective receivers.

10. (currently amended) A method in accordance with Claim 9, ~~characterized in that~~ wherein the reference transmitters are synchronized over ~~cables, preferably, glass fiber~~ cables.

11. (currently amended) A method in accordance with Claim 1, ~~characterized in that~~ wherein the burst transmissions ~~(B)~~ are sent utilizing non synchronized pseudo-random patterns which are a combination of ~~the~~ access mechanisms, time division ~~multiplex~~ multiplexing, and code division ~~multiplex~~. multiplexing.

12. A method in accordance with Claim 1, ~~characterized in that~~ wherein the pseudo-random patterns are prime number sequences.

13. (currently amended) A method in accordance with Claim 1, ~~characterized in that,~~ wherein in the case of the burst transmissions ~~(B), the~~ a separation of at least two signals of different origin arriving randomly at the same time is effected by ~~the~~ a receiver of the receiving and signal processing network.

14. (currently amended) A method in accordance with Claim 1, ~~characterized in that~~
wherein the burst transmissions (B) are transmitted at a pulse rate which is so high that
undetected individual values are tolerated.

15. (currently amended) A method in accordance with Claim 1, ~~characterized in that~~
~~the~~ wherein non synchronized burst transmissions (B) from the at least one mobile
~~transmitter module of the transmitters (S, Sp, Sb) modules are adapted to be~~
synchronized by a receiver module in the with the aid of receivers in the transmitter (S,
Sp, Sb) modules in order to reduce the probability of overlaps when there are many
~~transmitters.~~ transmitter modules.

16. (currently amended) A method in accordance with Claim 1, ~~characterized in that~~
~~the analogue reception~~ wherein the receiving and signal processing network comprises
means for receiving analog signals, received at the HF front end are digitized in an
evaluating unit, and the digitizing the received signals, and determining and storing
time points, at which the signals from the respective ~~transmitters (S, Sp, Sb)~~ transmitter
modules are received, ~~are determined and stored.~~

17. (currently amended) A method in accordance with Claim 1, ~~characterized in that~~
wherein different algorithms can be used by the receiving and signal processing

network for the processing of the received and stored signals in ~~dependence on the situation.~~ different situations.

18. (currently amended) A method in accordance with Claim 17, ~~characterized in that the signal is divided into, possibly overlapping,~~ wherein the receiving and signal processing network comprises means for dividing received signals into sections for the processing of the received signals, and the best respective algorithm or a plurality of algorithms are used simultaneously for the individual sections.

19. (currently amended) A method in accordance with Claim 17, ~~characterized in that the signal is divided into, possibly overlapping,~~ wherein the receiving and signal processing network comprises means for dividing received signals into sections for the processing of the received signals, and a rotated time axis is also used for individual sections so that ~~e.g.~~ discontinuities in highly dynamic processes are approached from two sides.

20. (currently amended) A ~~device~~ system for transmitting electromagnetic waves for use in a method for the continuous real time tracking of the position of ~~at least one mobile object~~ objects in a defined multidimensional space, comprising:

[[-]] ~~at least one mobile~~ a plurality of transmitter module modules which ~~is~~ are
attached to ~~at least one~~ the mobile ~~object in the system that is to be analyzed,~~ objects;
and

[[-]] ~~including~~ a stationary receiving and signal processing network for receiving and
processing ~~the signals which are~~ transmitted by the transmitter modules, said signals
being waves which are transmitted in a frequency band range using a time division
~~multiplex~~ multiplexing technique,

~~characterized in that there are provided communication means which carry out~~
wherein a transmission process is carried out between the ~~transmitters~~ transmitter
modules and the ~~receivers~~ receiving and signal processing network in ~~the~~ an available
frequency band serving as a single channel using ~~the principle of~~ pseudo-random time
division ~~multiplex~~ multiplexing with non synchronized pseudo-random patterns, and

~~in that there are provided~~ wherein the transmitter modules comprise transmitter
means ~~which transmit the transmission~~ for transmitting signals in ~~the form of~~ different
burst transmissions (~~B~~) having a low cross correlation.

21. (currently amended) A ~~device~~ system in accordance with Claim 20, ~~characterized~~
~~in that~~ further comprising reference transmitters (~~R1,..., Rn~~) ~~are provided with that~~
receive trigger and clock pulse signals ~~which are fed in~~ from the receiving and signal
processing network.